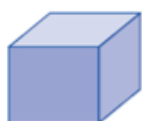


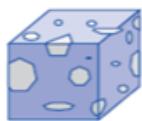
- Elements → on the periodic table
- Compounds → made from chemically combining two or more elements
- Molecule
  - ① two or more of the same element  
( $O_2$ ,  $H_2$ ,  $O_3$ )
  - ② two or more different elements combined together → the smallest unit of a compound  
( $H_2O$ ,  $NaCl$ ,  $SiO_4$ )
- Density Lab:
  - Elements → Copper (Cu), Iron (Fe)
  - Compounds → Salt ( $NaCl$ )  
Sand ( $SiO_4$ )  
(?)
- Separating Mixtures:
  - By physical processes
  - Can every mixture be separated? YES

- Separating Compounds:
  - By chemical processes
  - Can all compounds be separated in this way? YES

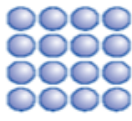
## Types of Matter



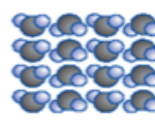
Homogeneous mixture



Heterogeneous mixture

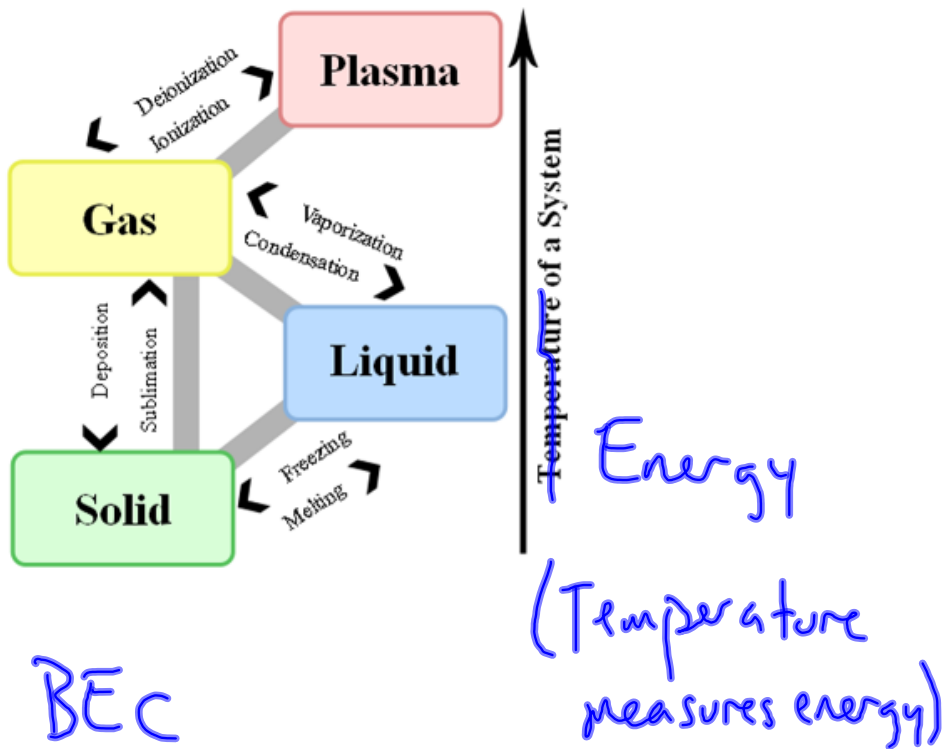


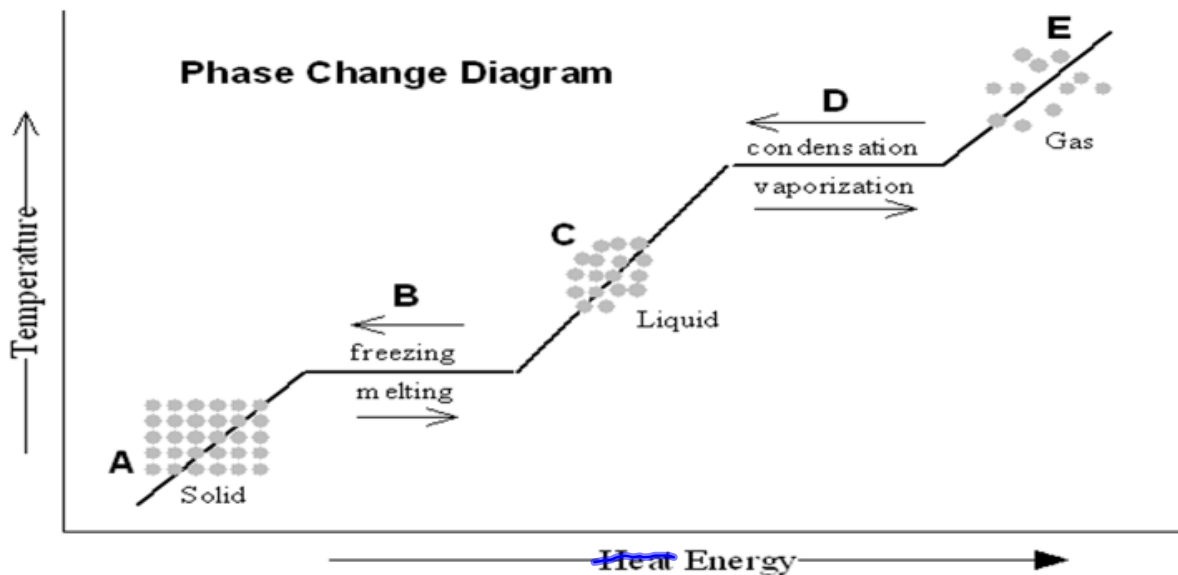
Element



Compound

Type of matter	Definition	Examples
Homogeneous mixture	A mixture that contains more than one type of matter and is the same throughout.	soda pop, air, chocolate ice cream
Heterogeneous mixture	A mixture that contains more than one type of matter and is not the same throughout.	chicken soup, soil, fudge ripple ice cream
Element	A substance that contains only one type of atom.	copper metal, oxygen gas, liquid nitrogen
Compound	A substance that contains more than one type of atom.	table salt, rust (iron oxide), carbon dioxide gas





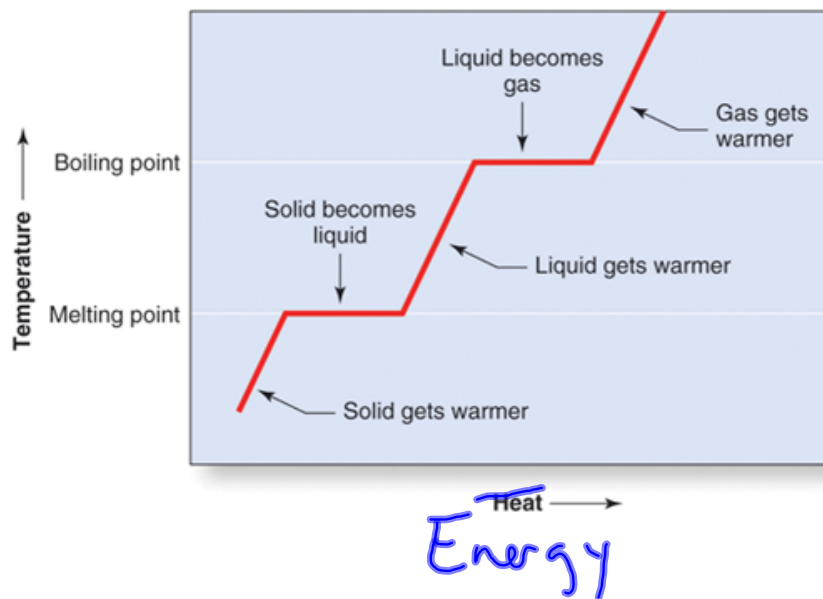
A: All particles (elements or compounds) are solid

B: Some particles are solid, some are liquid

C: All particles are liquid

D: Some particles are liquid, some are gas

E: All particles are gas



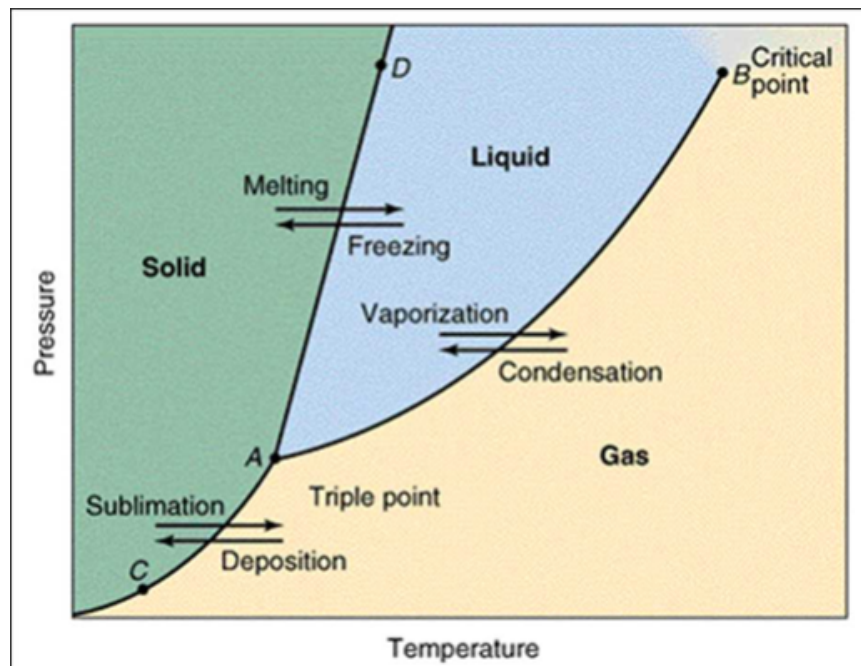
Melting point → solid/liquid point

Boiling point → liquid/gas point

Melting point of water →  $0^{\circ}\text{C}$ ,  $32^{\circ}\text{F}$ ,  
 $273\text{ K}$

Boiling point of water →  $212^{\circ}\text{F}$ ,  $100^{\circ}\text{C}$ ,  
(and condensing)  $373\text{ K}$

# Phase Diagram



Every substance has a phase diagram.